

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A method for using query signatures to provide security for a database, comprising:
 - 3 initializing a signature cache, wherein initializing the signature cache involves:
 - 5 trapping database queries in a controlled environment,
 - 6 parsing the database queries to produce a set of valid signatures, - 7 wherein parsing the database queries involves determining signatures for the queries, wherein the signature specifies a structure based on operations for the query and is independent of the value of literals in the query, and
 - 10 storing the valid signatures in the signature cache;
 - 11 receiving a query at the database;
 - 12 parsing the query at the database to determine a signature for the query, - 13 wherein the signature specifies a structure based on operations for the query and is independent of the value of literals in the query and wherein the signature is constructed from structured query language (SQL) keywords of the query;
 - 16 determining if the signature is located in the signature cache, which contains signatures for valid queries; and
 - 18 if so, processing the query, otherwise, triggering a mismatch alert.
- 1 2. (Cancelled)

1 3. (Previously Presented) The method of claim 1, wherein the mismatch
2 alert throws an error.

1 4. (Previously Presented) The method of claim 1, wherein the mismatch
2 alert is sent to a database administrator and the query is processed.

1 5. (Previously Presented) The method of claim 1, wherein the mismatch
2 alert is sent to a requesting application, thereby allowing the requesting
3 application to take action.

1 6. (Cancelled)

1 7. (Original) The method of claim 1, wherein if the signature generates a
2 mismatch alert and if the query is a valid query, the method further comprises
3 allowing a database administrator to add the signature to the signature cache.

1 8. (Currently Amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for using query signatures to provide security for a database, wherein the
4 computer-readable storage medium includes magnetic and optical storage devices,
5 disk drives, magnetic tape, CDs (compact discs), and DVDs (digital versatile discs
6 or digital video discs), the method comprising:

7 initializing a signature cache, wherein initializing the signature cache
8 involves:

9 trapping database queries in a controlled environment,
10 parsing the database queries to produce a set of valid signatures,
11 wherein parsing the database queries involves determining signatures for

12 the queries, wherein the signature specifies a structure based on operations
13 for the query and is independent of the value of literals in the query, and
14 storing the valid signatures in the signature cache;
15 receiving a query at the database;
16 parsing the query at the database to determine a signature for the query,
17 wherein the signature specifies a structure based on operations for the query and is
18 independent of the value of literals in the query and wherein the signature is
19 constructed from structured query language (SQL) keywords of the query;
20 determining if the signature is located in the signature cache, which
21 contains signatures for valid queries; and
22 if so, processing the query, otherwise, triggering a mismatch alert.

1 9. (Cancelled)

1 10. (Previously Presented) The computer-readable storage medium of
2 claim 8, wherein the mismatch alert throws an error.

1 11. (Previously Presented) The computer-readable storage medium of
2 claim 8, wherein the mismatch alert is sent to a database administrator and the
3 query is processed.

1 12. (Previously Presented) The computer-readable storage medium of
2 claim 8, wherein the mismatch alert is sent to a requesting application, thereby
3 allowing the requesting application to take action.

1 13. (Cancelled)

1 14. (Original) The computer-readable storage medium of claim 8, wherein
2 if the signature generates a mismatch alert and if the query is a valid query, the
3 method further comprises allowing a database administrator to add the signature
4 to the signature cache.

1 15. (Currently Amended) An apparatus for using query signatures to
2 provide security for a database, comprising:
3 an initialization mechanism configured to initialize a signature cache,
4 wherein when initializing the signature cache, the mechanism is configured to:
5 trap database queries in a controlled environment,
6 parse the database queries to produce a set of valid signatures,
7 wherein parsing the database queries involves determining signatures for
8 the queries, wherein the signature specifies a structure based on operations
9 for the query and is independent of the value of literals in the query, and
10 store the valid signatures in the signature cache;
11 a receiving mechanism configured to receive a query at the database;
12 a parsing mechanism configured to parse the query at the database to
13 determine a signature for the query, wherein the signature specifies a structure
14 based on operations for the query and is independent of the value of literals in the
15 query and wherein the signature is constructed from structured query language
16 (SQL) keywords of the query;
17 a matching mechanism configured to determine if the signature is located
18 in the signature cache, which contains signatures for valid queries;
19 a processing mechanism configured to process the query if the signature is
20 located in the signature cache; and
21 an alerting mechanism configured to trigger a mismatch alert if the
22 signature is not located in the signature cache.

1 16. (Cancelled)

1 17. (Previously Presented) The apparatus of claim 15, wherein the
2 mismatch alert throws an error.

1 18. (Previously Presented) The apparatus of claim 15, wherein the
2 mismatch alert is sent to a database administrator and the query is processed.

1 19. (Previously Presented) The apparatus of claim 15, wherein the
2 mismatch alert is sent to a requesting application, thereby allowing the requesting
3 application to take action.

1 20. (Cancelled)

1 21. (Original) The apparatus of claim 15, further comprising an adding
2 mechanism configured to allow a database administrator to add the signature to
3 the signature cache if the signature generates a mismatch alert and if the query is a
4 valid query.